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ABSTRACT

The profession of vocational teacher is relatively new within the family of teaching professions. Preservice education for vocational teachers differs largely among industrialized and less industrialized countries. This paper focuses on three approaches to teacher education for vocational teachers: the bottom up, or add-on, approach; the top-down, or integral, approach; and the outcome-oriented approach. Examples of vocational teacher from several European and non-European countries demonstrate the differences that exist in teacher training practices within this field. The paper concludes that the profession of the vocational teacher exists in three very different stages of development, from a rudimentary qualification status to a well-established career pattern which equips the professional with a broad range of high-level qualifications. The relevance of this profession depends on the weight which vocational education is given within the educational system. The paper notes that vocational teacher training is being reformed in all of the countries mentioned, and in some of the countries, it has been raised to a professional status. (SM)

How a teaching professions emerges – the case of the vocational teacher

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How a teaching profession emerges – the case of the vocational teacher

Abstract

The profession of the vocational teacher is a relatively new member in the family of teaching professions. Teacher education for vocational teachers differs largely among industrialised countries and among less industrialised countries as well. The article sets up a categorisation of three approaches to teacher education for vocational teachers. Examples of vocational teacher education from several countries, European and non-European, demonstrate the differentiability that exists in teacher training practices in this field. A move towards the integral approach is to be observed which may co-exist with the add-on approach for a rather long while.

Introduction

The term of "vocational teacher" in this article is meant to cover all teachers who train and educate students on the level of the upper secondary schools for working life and for specific occupations. Within this limitation it also covers the meaning of "technical teacher". What makes it worth to focus attention on this sector instead of looking at teacher education as a whole? Teacher education for teachers in general schools meanwhile can be traced through a rather long history which reveals a progress through different patterns of teacher education. In many countries teacher education today is organized in a relatively stable structure which is mainly based on higher education institutions. This is different with teacher training and teacher education for vocational teachers which has got a much shorter history and still is seeking a stable structure. Vocational teachers arrived late in the family of teaching professions as vocational schools only in recent decades began to spread. What can be regarded as a historical process in the field of teacher education for general schools can be observed as a contemporary ongoing development with respect to the education of vocational teachers: the emergence of a new teaching profession.

The divergence of patterns that are applied in different countries is greater than in the field of general teacher education. Contrasting patterns can be found within one country. Although teacher education for teachers in general schools anyway requires studies of a variety of subjects and disciplines educating the teaching profession for vocational schools can even be more complex because vocational teachers must not only master subject knowledge and pedagogical knowledge similar to the professional knowledge of teachers at general schools but they have also to collect knowledge and skills of the occupations they teach.

The education of vocational teachers is not only a topic in several industrialised countries but also plays a role in co-operations between more industrialised and less industrialised countries. Teacher education for vocational schools is one of the fields of activities for developmental aid institutions. They face the question what experts from a country with an elaborated system can teach countries with only rudimentary institutions and a weak economy. As I am fortunate to take part in a project of co-operation in the field of vocational teacher education between my university in Germany and institutions in Vietnam and Laos I come across the difficulties of consultancy because both sides speak about this topic from very divergent viewpoints.

What can be learnt in general terms from regarding the efforts in several countries to establish institutions and regulations of teacher education for vocational education? We are aware that teaching is a professional activity composed of a complexity of competencies and abilities. This is especially true in the field of vocational education. We roughly know what makes good teaching however we have difficulties to convey the competencies and abilities that are needed. Problems occur in interrelating theoretical and practical contents, in sequencing units of studies and practical experiences and in bringing together knowledge from rather different fields of expertise such as practical occupational skills, technological subject knowledge, practical activities within settings of economy and industry, pedagogical and didactic knowledge and exercise in teaching itself. We believe to know what is to be learnt to fulfil the role of a teacher in vocational education, we also know that this indeed has been acquired by many teachers yet we are confronted with the fact that not everything that has been learnt can also be taught. To investigate in more detail how the teaching profession of the vocational teacher emerges makes us aware of how tentative our attempts are when it comes to establish educational structures even when we believe to have a relatively clear picture of our objectives.

Categorising the teaching profession of vocational teachers

In order to approach an international comparison of teacher education structures in the field of vocational education a German scholar made a proposal to discern among four categories of teachers which cover the totality of teachers in vocational education. The categorisation is constructed along the duality of theory and practice (Lipsmeier 2001). In a rather abstract manner the practice-teacher is opposed to the practice-theory-teacher and additionally two categories of theory-teachers are identified: one for the lower level of theory and one for the higher level of theory. Left aside is the teacher for general school subjects because this category is known from general schools. The categorisation differs not much from the differentiation that UNEVOC made in 1977. UNEVOC emphasises the difference of the "vocational teacher" and the "technical teacher" and completes its table by the "workshop teacher" and the "general technical teacher" – the latter one being constraint to lower secondary schooling (UNEVOC 1977, pp 19-20).

For conducting comparisons it is a meaningful method to start with setting up categories which are generalised enough to be applied to a variety of situations. Sometimes it seems to be wise to start from an abstract typology, in order to derive a hypothesis which allows to focus the investigation, in other cases it seems to be preferable to collect many data and be inspired by this search to create a typology which helps to organise the data collection. The latter way was pursued by another German scholar: Georg Rothe (Rothe 2001). The above mentioned categorisations can serve as a starting point, yet a further step is needed to proceed from a description of the teaching profession to the differentiation of patterns or models of teacher education (Grollmann 2001).

Starting from the duality of theory and practice it is helpful to identify the fields of knowledge and expertise that must play in role in vocational teacher education. Five fields at least can be counted which are mentioned in scholarly literature on the topic:

Knowledge and skills in technical and technological areas and subjects
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Pedagogical and didactic knowledge and skills
Extended general and liberal knowledge
Expertise of classroom practice
Expertise of working life and specific practices of business and industry

The main problem inherent in this table is the interrelation of theory and practice. The first and the fifth field are connected and the second and the fourth field as well. Theoretical studies and practical experiences need to be organised in a sense of interrelationship to make teacher education effective. Their relationship aims at supplementing each other and even at reinforcing each other. With respect to technological knowledge and skills the necessity of considering both, theory and practice, is even more obvious than with respect to the pedagogical knowledge and skills which more easily are regarded to be an outcome of rich practical expertise. In both cases practice is not confined to work in laboratories but is understood in terms of real life working experiences. As the connection of theory and real life practice is difficult to accomplish, laboratory work can be used as an intermediate means for bringing both into closer relation. The third field of knowledge sometimes is cited because not few students of vocational teacher education programs are lacking full general secondary schooling.

To identify these fields of knowledge and expertise is an intermediate step in the effort to arrive at a typology of patterns of vocational teacher education. The emphasis on the five fields differs among different patterns, one field may be selected and others neglected in programs of vocational teacher education. Yet more distinctions must be added in order to construct a typology. A basic difference has to do with the time structure of teacher education, the difference of pre-service training and in-service training. It may be required that a teacher has to acquire the basic professional competencies before starting to practise the profession or it may be accepted that a person starts the business of teaching and only gains the competencies in the professional work itself supported by units of in-service training. Another distinction refers to the question whether a vocational teacher shall have learnt and practised the occupation which is the object of teaching before joining a teacher education program. For some teacher trainers this precondition is indispensable others yet treat this criterion more generously because they stress the theoretical dimension in teacher training.

These reflections led me to a table of three basic patterns of teacher education in vocational education. They are not far from the conclusions which the above mentioned German author drew when he started from the theory-practice duality in his thoughts on the problem of vocational teacher education (Lipsmeier 2001). Two patterns are based on pre-service-education, although some elements may also be offered in the way of distance learning and may be taken during the service, the third one relies on in-service-training. They reflect different levels of elaboration in the construction of the teaching profession.

The first pattern follows a bottom up way in contrast to the second one which might be seen as a top down structure. "Bottom up" in this case means that teacher education grows from vocational education itself. An experienced practitioner of a specific trade or occupation who enjoyed a thorough training himself or herself, in principle is thought to be able to teach his or her trade or occupation and only needs some elements of further education to fulfil the role of a teacher. This is a rudimentary concept of the teaching profession which can be found when vocational education is mainly focused on practical training, and also is applied in more elaborated

structures of vocational education for those teachers who teach practice. An advantage of this model sometimes is seen in giving the practitioner the chance to continue the work for the employer as a main source of income and restrict teaching to a part-time job. This model sometimes is named the "add on - approach" because there is a fundament given by the practical expertise to which some elements are added (European Training Foundation 1999, p 68; Selete 2001). The term "consecutive model" which is applied by Lipsmeier hits an important aspect also.

The second pattern is not necessarily based on the expertise of the teacher in the trade or occupation that is being taught but is constructed in analogy to teacher education for general schools. The teacher education program tries to convey the full range of competencies that are regarded to be indispensable for the teaching profession in one period of time which must be relatively lengthy as is known from teacher training for general schools. Full mastery of the practical side does not have priority over the knowledge of theoretical backgrounds of the technological speciality and over the pedagogical foundations as well. Students are invited to join the teacher training program after completing full secondary schooling whereas passing through a vocational training before joining the program is not compulsory. Some kind of substitution for the lack of practical training instead is implied in the program. Teacher students get their first access to the vocational field which will be the object of their teaching via studying its theoretical fundamentals. That's is why this model can be named a top down structure, yet I prefer to call it the "integral approach" because the intention is to equip the students with the necessary professional knowledge and competencies before allowing them to enter the profession. Sometimes authors also use the term "concurrent model" for this approach which points at a teacher training curriculum composed of all important elements within a given period of time (e.g. Lipsmeier 2001).

In terms of the historical development the integral approach usually is late compared to the add - on approach. Once institutions of vocational education are established, the add on - approach easily grows out of them whereas a quite new impetus and new efforts are needed to start an integral model which is situated at a higher level of education than vocational education itself. This is why both approaches often exist side by side which results in a hierarchy of teacher categories. The duality of teacher training approaches might coincide with the practice - theory duality by reserving the add on - approach for practice - teachers and the integral model for theory - teachers. This partition of responsibilities yet is bound to a hierarchy among teachers which seldom is appreciated and eventually the add on - approach might run out.

The third pattern neglects the time structure and does not arrange a sequence of the contents. It abstains from entrance requirements and instead relies on opportunities of learning on the job. However it needs not lack means of control and can be connected with a system of standards to which teachers shall stand up during their career. The model might be called the "outcome oriented" approach. It does not worry about how and where a teacher acquires professional knowledge and skills but emphasises evidence that it has been acquired. When this model is connected with a scale of salaries it contains incentives for teachers to improve their abilities and be ready to demonstrate them. It might comprise units of formal learning but also stresses the chances of job - integrated learning.

Add on - approach
Integral approach

International examples for the add on – approach

Denmark since long enjoys a well established system of vocational training. It takes part in the tradition of the German speaking countries which established the apprenticeship – scheme on a broad scale. Industry cares for an extended practical training within business firms and the state supplements their training by establishing part-time vocational schools which mainly teach theoretical backgrounds of the trades and occupations. Nevertheless, Denmark so far did not create higher institutions for vocational teacher training as Austria, Switzerland and Germany did. For a long period the requirements for the vocational teaching profession were kept low. A teacher for a vocational subject at the part-time vocational school had to fulfil the precondition to have passed the apprenticeship in the appropriate trade or occupation himself or herself and to have collected five years of practice in this occupation in the world of business or in industry. This was enough to apply with a vocational school. It was even enough to apply with one of the higher vocational institutions which operate on the upper secondary level as full-time schools and are more selective than the apprenticeship scheme. In Denmark they are called HTX and HHX, because they lead to the higher technical exam or to the higher commercial exam. They care for a selected portion of school graduates yet the requirements for teachers in vocational subjects are the same as for the teachers in part-time-vocational schools. Part-time teaching while continuing work in industry was and is not unusual.

In 1969 a new institute was created which delivers a course for vocational teacher training based on pedagogical and didactic themes. The requirements for being a vocational teacher were not changed yet after starting the teaching job teachers have to enter the course within the following two years. It is the State Institute for Vocational Teacher Training (DEL: Dansk Erhvervspædagogisk Læreruddannelse). The course is called the *Paedagogicum*. It is not a full-time course but makes use of the idea of recurrent education. It was started with a one year's length which in 1997 was extended into a three semesters' – length. Between 1991 and 1994 there was even a two years – course offered but was not asked for by teachers. From the three semesters altogether 14 weeks must be spent in recurrent full-time learning at one of the five branches of the institute DEL. During four weeks the teaching practice of the freshman teacher is supervised by a colleague at the teacher's own school who is named by the institute DEL. These elements must be completed within three semesters. The final exam leads to a diploma – degree. All costs are borne by the state. (CEDEFOP 1997, pp 37-51; Universität Hamburg 2000)

This is a good example of an add-on approach which makes use of the idea of continuing education accompanying the job. Denmark has a strong tradition of continuing education and trusts in this way also to solve the problem of vocational teacher education. Besides this approach a possibility exists for university graduates with a degree from a technological or business program to apply as a teacher at a vocational school and after being hired to undergo the *Paedagogicum* at the institute DEL yet teachers with this type of career are rather rare. The requirements for the profession of a vocational teacher must not be too high to keep the profession attractive. The Institute DEL obviously is interested in expanding the *Paedagogicum* and in strengthening the teaching on pedagogy of vocational education. A similar dynamics contributed in the German speaking states to lifting vocational teacher education to the higher

education level. Whether the DEL institute will be a nucleus for a similar development in Denmark will be seen in the future.

Similar to Denmark we find an add on – approach in **Spain** which is pursued for similar reasons, especially to keep the threshold for teacher training programs low enough to attract students, and also leads to similar consequences, especially a hierarchy of the teacher profession. The centres for teacher training (Centros de Enseñanza de Profesores) which exist in public and in private ownership are responsible for offering add on – units. The state created programs of 200 hours length which are provided by these centres for vocational teachers who teach in workshops at schools or in other vocational training centres maintained by the state offices of labour or by private owners. The trainers are practitioners in their crafts and occupations yet their technological background knowledge is regarded as insufficient and shall be expanded by the courses (CEDEFOP 1997, p 43-57; CEDEFOP TTnet – no year).

More extensive are the programs on pedagogical matters that the centres administer also. Teacher students for vocational subjects (Formación Profesional Específica) in lower and upper secondary schools (Institutos de Educación Secundaria) have to pass the first cycle of studies in universities, mainly at engineering departments, which ends after two years. Their knowledge covers a so called “family of occupations” such as agriculture, graphic arts, construction, electricity and electronics, maintenance of motor vehicles, textile industry and others. The teacher students for vocational subjects earn the diploma-degree, whereas teacher students for general subjects in secondary schools have to choose a three years’ program which leads to the degree of Licenciado. The diploma for vocational teacher students is on the same the level as that of a technical engineer (ingeniero técnico) yet below the qualification of an engineer which helps to hold the graduates in the teaching career and to keep them from a change into industry. Both categories of teachers have to pass a one-year’s-program at a centre for teacher training (Centro de Enseñanza de Profesores) after graduating from the university, the so-called Curso de Aptitud Pedagógica - CAP. In some cases this course can also be delivered by university departments for education. It is a full-time course which teaches foundations of education for vocational teachers and didactic aspects of specific vocational school subjects and also includes several weeks of teaching practice in schools (Eurydice 2001: Eurybase 2001. The education system in Spain).

Although students shall be attracted by keeping thresholds low the teacher training for vocational teachers follows the general procedures for academic professions in Spain. Entry into the university program, transition to the teacher training centre and finally the admission to a teaching position in a school - all steps are bound to selective examinations which regulate a balance between the number of applicants and that of available positions. Vocational teachers who are joining the profession directly from a practitioners’ position in industry and those who followed the two- plus one-year model of teacher training form a hierarchy. The latter type of vocational teacher training curriculum comes closer to the “integral model”. Similar to the institute DEL in Denmark the vocational departments in the teacher training centres might gradually show a tendency towards fostering the integral way of thinking.

Another initiative which fits into the add on – approach acts on a quite different level. It is not part of a national policy and aims mainly at developing countries. The **Commonwealth of Learning** is an organisation which contributes to education. It was inaugurated by member states of the British Commonwealth of Nations in 1988 and located its headquarters in Vancouver. The

Commonwealth of Learning focuses on distance education and media based education. To support vocational teacher education a core curriculum was designed and made accessible on the Internet. It is composed of 12 modules which emphasise organisational knowledge, pedagogical knowledge, economic knowledge and knowledge on educational technology, but leave aside technical subject knowledge, didactic subject knowledge and general knowledge. The selection of contents allows flexible application in different contexts and on different levels of teacher training, in initial teacher training and also in continuing teacher training. It was tested in four Caribbean countries: Bahamas, Barbados, Jamaica and Lucia (The Commonwealth of Learning 1998).

Making use of modules on pedagogical topics as a means to prepare skilled workers or technicians or engineers for the teaching profession is a practice that often occurs. An example among many others is to be found in **Vietnam**, more especially in the Vietnamese-German full-time vocational school at Song Cong in the province of Thai Nguyen, which employs 90 teachers for vocational subjects who care for about 2.400 students. 20% of the teachers graduated from an engineering department of a higher education institution and later completed a module on vocational education of one or two months length. Although this pattern of teacher education for vocational schools is widespread in Vietnam it shall be replaced by integral models which guarantee a more extended pedagogical training (Pham Van Thang 2002).

To strengthen the add on - approach is an appropriate strategy as long as the integral model is out of reach. This strategy is not seldom applied by international organisations such as UNEVOC or the Asian Development Bank in developing countries. Some of the countries don't pay enough attention on vocational teacher training or rely on a weak variant of the add on - approach. An institution which in several countries was introduced by international organisations or by national governments is called: National Technical Teacher Training College (NTTTC). Such colleges are to be found e.g. in India, China, in Malaysia, in Vietnam and in Pakistan. Before in **Pakistan** in 1987 the NTTTC was founded in Islamabad an in-service program for teachers in vocational education was available which followed the add on - approach. It focused on short pedagogical trainings for teachers whose qualifications were limited to technical skills. They earned a "certificate in technical teacher education". The NTTTC introduced a more advanced in-service training program which is a one year full-time course. It comprises pedagogical contents, upgrading of subject-related knowledge and of practical skills and an industry - based internship of 8 weeks' duration. Teachers who possess an associate degree in technology earn another degree named "Diploma in Technical Teacher Education". Even a "Graduate Diploma in Technical Teacher Education" was created for those teachers who joined the teaching profession as engineers. Yet these programs only reach out to teachers in public schools not into the private sector (Gyavri 1997).

The principle of "adding on" can - in economically bad situations - also be inverted into "taking off". An example for this inversion can be noticed in **Poland**. In this country as a result of Austrian influences in the past full-time vocational schooling is dominating the field of vocational education. Full-time vocational schools exist on a lower level and on a higher level. Yet the economic conditions of the country since a while are not favourable for vocational education and this is why the lower vocational schools are slowly fading away and the higher vocational schools are being converted into technical upper secondary schools (Technical *Lyzeum*) which are eased of the burden of practical vocational training. Public money is lacking for modernising the technology in workshops at schools, industry is not willing to subsidise

vocational training, practitioners from industry who used to be a reservoir for teachers for practical vocational training are no longer prepared to change job because teacher salaries are rather low. Vocational teachers who were trained for theoretical vocational subjects at higher education institutes for technical or commercial education (so-called Academies and others) used to receive supplementary training in addition to their theoretical training in so-called Technical Study Centres which allowed them to fill the gap of practice. As most of these teachers pursued an academic way of studies they had no opportunity for practical vocational training before joining the study centres. The additional experiences helped them to care for students in workshops where this was needed. Yet practical vocational training is being taken away from the full-time vocational schools and the 30 Technical Study Centres which existed in Poland were closed down.

This is not the only case of "taking off" in vocational teacher education in Poland, another one concerns the pedagogical training within teacher education. Pedagogical courses are offered by the above mentioned higher institutes for technical or commercial education (Academies and others) yet these courses were declared voluntary which allows to require special tuition fees for them. This is why many teacher students omit them. (European Training Foundation 1999, p 67; European Training Foundation 1999a, p 54). They might "add" them "on" later in their careers because they are offered as evening courses or distance courses by several institutes of higher education, also universities. Yet also in this case the costs are high and many teachers dispense with them and also with the diploma-degree they could earn by joining them. A Polish author speaks of a gap that emerged in vocational teacher training (Szczyrkowska 1999, p 105).

International examples for the coexistence of the add on – approach and the integral approach and for the integral approach itself

It is not unusual that both approaches – add on and integral – coexist in terms of competition and also of mutual impact. The rise of the integral mode is concomitant with the tendency of uplifting institutions for teacher training to the higher education level. Mutual criticism may come out of it, one part criticising the lack of practice with the other side and vice versa the lack of theory is disapproved. Although installing an integral mode by an act of policy seems to make the add on - approach dispensable both can coexist because of their specific strengths and weaknesses. The hierarchy of teacher categories that results from this development often is found annoying and might eventually be abolished in favour of the integral mode at the expense of practical experience in the crafts and occupations.

A striking example of coexistence of both modes is to be found in the **Greek university Selete** which is headquartered in Athens. According to the way some modern universities in Greece are organised the Selete University is divided into six branches in six towns and cares for the training of teachers for vocational education for all Greece. It started its teacher training activities in the 1960s by setting up a program on pedagogical themes which serves as a supplement for teachers for vocational subjects in secondary schools. Later an integral curriculum was constructed which offers full academic training for teachers for vocational subjects. The "add on" way is still continued in a department called "Pedagogical Technical Department" (PATES) and the integral program is conducted in another department called "Higher Department for Technical and Pedagogical Education" (ASETEM). It serves for technological and for pedagogical contents of

teacher training. It comprises a pedagogical laboratory where students teach under supervision sequences of instruction to small groups of school students (Selete 2001).

In addition to what was said about the NTTTC in Islamabad it is of interest that in another economically weak country the Technical Teacher Training Centres were developing into institutes of the integral mode. This is **Vietnam** where a process of upgrading of technical schools into colleges and the move of the technical teacher training colleges to the higher education level can be observed. Meanwhile about 10% of the vocational teachers graduated from a TTTC (Ministerium für Arbeit, Kriegsinvaliden und Soziale Angelegenheiten. Generaldirektion für Berufsbildung 2001, p 29). The five TTTC's (included the college in Thu Duc) provide a teacher training of three years' duration for students who graduated from a secondary school – either a general or a vocational one (Binh 2002). Although some of the TTTCs' programs still function in the add on – mode they meanwhile established an integral model as well.

An example for the existence of a full-fledged integral model standing alone is shown by the **Netherlands**. A view from Germany on the training scheme for vocational teachers in the neighbour country provides the surprise that teacher students are educated for theoretical vocational subjects and vocational practice at the same time. The Netherlands' vocational schools comprise a lower level, the so-called vmbo (= voorbereidend middelbaar beroepsonderwijs) which is an optional school for the age group of 12 to 16 and a middle level, called the mbo (= middelbaar beroepsonderwijs) which offers courses of two years' length and also of four years' length for age groups beyond 16. The vmbo is a full-time school, the mbo supplies for many programs both variants, full-day instruction and evening instruction. Besides the school-based education there exists a relatively small sector of apprenticeship based vocational training.

The teacher training for vocational teachers takes place in institutions on higher education level which until recently were non-university institutions, called hbo (= hoger beroepsonderwijs). Very recently they received the right to use the title of a university and the formerly relatively numerous and small institutions were bound together into specialised universities with several branches in several towns. Some institutions for vocational teacher training merged into the Fontys University for Professional Education which is spread over 22 locations in all Netherlands. Students who enter the teacher training program may come directly from a general secondary school or from the middle vocational school (mbo). Those who acquired vocational qualifications at a mbo or in the apprenticeship scheme mostly choose the evening course variant which takes their practical qualifications into consideration.

One of the four years of the full-time program is reserved for practical industrial experience. The teachers get not specialised for one single occupation but for a family of occupations, this means a relatively broad technical area. Specialisation was given up. They are prepared for the theoretical and for the practical side of the technical area as well. As the vocational schools do also these teacher training institutes hold workshops and laboratories. Additionally the teacher students take pedagogical and didactic modules and spend 10 weeks on teaching experience in schools (CEDEFOP 1995, pp 30-42; Eurydice 2001: The education system of the Netherlands).

This teacher training program comprises all five fields of knowledge, which were categorised before. Extended general knowledge is ensured by modules on the natural sciences. It is an elaborated example of the integral model and arranges its divergent contents within a relatively

short time span. The practical side of the vocational and technical contents is given no less time than the theoretical one and the same is true for the pedagogical training. A price that was paid for this model is the abandoning of the requirement that an applicant for the teacher training program needs to possess a vocational qualification. This mostly is a sensitive point in the integral approach.

Also in the Netherlands the integral mode superseded the add on – approach which was hold sufficient for a long while and relied on the practical experiences of vocational teachers enriched by a short in-service course at an institution of higher vocational training. The change started in 1969. All the more amazing is the fact that the transition to the integral model did not lead to a split of the profession into teachers for theoretical subjects and those for practical subjects. Three provisions may be named which help to enable the vocational teacher to teach both dimensions of an area of occupations. The one year - industry based internship which is compulsory now in the full-time program to a certain degree compensates for the lack of a teacher's own vocational training. Still is the way open for practitioners from industry to enter a teachers' career by using the part-time variant of the program which is adapted to their level of qualifications and leads to the same status as the full-time variant. A fifth year of studies may be added for more specialisation within the chosen area of occupations if this is advantageous.

Austria is one of the very few countries which build the integral model on the fundament of a teacher's own occupational qualifications and expertise. By this both ways, from the bottom up and from the top down, are comprehended in one. This solution implies relatively lengthy career patterns which only are accepted when the teacher profession enjoys a high status and good payment. Vocational education in general has got a high status in Austria. This state enjoys the luxurious situation to have two systems of vocational education besides one another, a system of vocational full-time schools and an apprenticeship scheme. This is not unusual principally but in Austria both systems are of nearly the same extension and supplement each other and also compete with each other for students. Not few occupations are offered for training in both systems within one community. This allows for flexibility for the clientele and for policy making as well. Even better, full time vocational schools exist on two levels, a middle level and a higher level. The latter one leads to a technician's qualification and together with this provides full upper secondary graduation which entitles for studies at any institution on the tertiary level. Yet even these generous conditions for vocational education arrive at a limit when the university education for vocational teachers is regarded.

One scheme of vocational teacher training builds on the vocational qualification itself – either in the middle full-time vocational school or in the apprenticeship scheme – and implies at least six years of vocational practice and the acquisition of the title of a master in the respective trade. From there a transition into a teacher training institution for vocational teachers on tertiary level is possible, the so-called *Berufsakademie*. The education at this institution takes three years and comprises technological background knowledge, foundations of education, "applied vocational pedagogy" and school practice. In the classrooms of the *Berufsakademie* students who went this way sit together with students who went a different way, that is to say, they graduated from the higher vocational school and then had at least two years of vocational practice. Teachers who graduate from the *Berufsakademie* have a practical and a theoretical expertise within their area of occupations. The practical expertise is needed at the full-time vocational schools and also at the part-time vocational schools which supplement the apprenticeship scheme. The part-time

vocational schools provide parts of the practical knowledge in workshops and laboratories of their own. Other parts are cared for at the business firms which employ the apprentices.

This curriculum of vocational teacher training is designed for teachers who combine practical and theoretical mastery in their teaching. Yet another category of teachers exists whose teaching is limited to the theoretical backgrounds of theoretical vocational subjects in the higher full-time vocational schools and sometimes also in the middle full-time vocational school, e.g. electrical engineering or machine construction or business subjects. They follow full university programs in engineering or business departments and earn a Diploma which in Austria is a full graduate degree. In their university studies they don't receive any pedagogical instruction. When after graduation they decided to join the teacher profession they can attend courses on teaching methods which however are more or less voluntary and are not finished by an exam. This example shows that universities have difficulties to provide a full-scale integral pattern and instead expect from their graduates to make use of the add on – approach. This is different with the *Berufsakademien* and also with the Netherlands' higher education institutions for vocational teacher training, both not being real universities. One reason is that students who earned a graduate degree from a university have relatively easy access to positions in industry and commerce and would shrink away from the teacher profession if another hurdle would be set up. Nevertheless the teachers who graduated from a university are estimated highest in terms of salary.

A significant intensification of the integral model is possible when a research institution exists for training doctoral students and scholars in the area of vocational education. They not only educate teachers for vocational education but also teachers for teacher training institutions who are fully professionalised in their field. Such institutes can play a leading role in the whole domain of vocational education by their research capacities and can develop fundamental documents such as descriptions of the trades and occupations or families of occupations and such as curricula and examination syllabi. Such a role is played in **Russia** by the Ural State Vocational Pedagogic University at Ekaterinenburg which started as a teacher training institute in 1979 and was made a research university in this field for all Russia in 1993. All of the roughly 80 Russian institutes which are active in teacher training for vocational schools form an "Association of the Russian Higher Schools of Methodology and Research in Vocational Education" which is co-ordinated by the Ural State Vocational Pedagogic University (Ural State Vocational Pedagogic University 1999).

International Examples for the outcome oriented model

It is a long tradition in **England and Wales** to define the contents of education via examination syllabi which directly or indirectly are steered by expectations of universities. From this tradition stems the present tendency to set up standards in education which now also reaches the vocational teachers. Teacher training for general schools meanwhile follows a national curriculum for teacher training yet for vocational teacher training standard setting seems to be sufficient. Who can be named a vocational teacher in the English system? The answer is that everybody who teaches at a Further Education College can be called a vocational teacher. This group of persons however is very disparate in terms of their qualifications. Not few of them only teach for two hours a week or little more. They are paid very differently dependent on the college which hires them.

In 2001 the government created the Qualified Teacher Status (QTS) as a minimum standard which all teachers at Further Education Colleges should meet. Within the English scale of qualification levels it is situated on level 3 which is below the BA – degree whereas all other teacher categories at least have to reach level 4 which is the BA – level. An agency was installed to guard this standard. It is financed by the state yet administered by bodies of the world of business: Further Education National Training Organisation (FENTO). It subsidises colleges which help their teachers to attain the status. The colleges themselves may offer courses of further education for their own contract teachers and for those from other colleges yet the examining bodies are the universities. The standards cover vocational knowledge and vocational skills and knowledge on teaching methods (Robson 2001; Eurydice 2001: The education system of the United Kingdom: England and Wales; CEDEFOP 1994, p 37-53).

Although the colleges are subsidised for this specific purpose the ways of preparing teachers for the status may be very individual. The teachers have to proof their knowledge and not to testify their participation in formal training units. They might also collect the required knowledge by their teaching practice itself. Australian authors speak of ad – hoc learning (Choy/Pearce/Bakeley, p 7). An appreciated means also are distance learning materials. The way of learning which is favoured by the outcome-oriented model looks like self-directed learning yet it is indirectly steered by setting objectives via standards. From a viewpoint of pedagogy which stresses the process more than the product it is hard to understand why those who care for the standards are not eager to reflect on how they are approached by learners. From this viewpoint there is more fascination about how learning proceeds than about what has been learnt.

In Australia the Technical and Further Education Colleges (TAFE) which are maintained by the states, act similar to the Further Education Colleges in England and Wales. Also do the Registered Training Organisations (RTO's) which are private providers yet subsidised by public money. For these organisations the Australian National Training Authority (ANTA) created a system of national vocational qualifications from which it derived standards of vocational education. These were completed by training packages and a scheme of assessment. This curricular system was rounded by issuing certificates which the teachers shall earn by proving their ability to handle the training packages the right way in their teaching practice. They may acquire such certificates in initial teacher training and in continuing teacher education as well. This detailed system of standards leaves little freedom for self-determined learning neither at the side of the students in vocational training nor at the side of teacher students nor at the side of teachers, yet it must be stated that it does not occupy all time for training and teaching (Harris 2001; Kell 2002; Choy/Pearce/Blakely 1999).

Conclusion

The profession of the vocational teacher exists in very different stages of development - from a very rudimentary qualification status to a well established career pattern which equips the professional with many-sided qualifications on a high level of expertise. The relevance of this teacher profession depends on the weight which vocational education is given in the education system. To establish a system of vocational and technical education is not such a self-understanding goal for educational policy as it is with respect to general schooling. When however a system of vocational schools exists it is not deniable that vocational teachers need a

broad range of qualifications. To acknowledge this means to abandon the imagination that teaching an occupation is limited to demonstrating how it is done and needs not much explanations and reasons. Yet this picture is drawn from the former master-apprentice relationship which was fitting to the old trades and is not apt for contemporary industrial occupations. Theory and practice claim their own rights and must not be opposed to each other.

The first two of the three models exposed here can be seen in a historical perspective as subsequent models which in a long time span mark the way from handicraft work to the command over modern technology. Industry also brought about much dull and monotonous work. This however was never the object of vocational training because it needed no vocational qualification. Vocational educators not in vain hoped for the retreat of this type of work. The more vocational education becomes an established part of upper secondary education which is on a par with general education the more intensive is the search for an integral mode of teacher training. A critical phase however is reached when vocational teacher education is placed into universities because universities are ponderous institutions when it comes to accomplish a theory-practice balance.

From another point of view the three modes mirror different ideas of learning. The add on – approach implies the belief that the hand teaches the head and practical experience will inform us about missing links which are to be acquired by specific learning arrangements. The integral mode is more influenced by cognitive theories on learning, its way is from the concept to the practice. The third mode obviously does not cultivate a general idea of learning but regards learning as an individual activity which may be different with every learner and obviously doesn't follow a general rule. Therefore it doesn't matter how the learners move to the goal, it is important that they arrive. Perhaps it is an underlying hope within the third model that setting a common goal for all learners will not lead to a common way of learning but to a multitude of ways.

Not everything that is being learnt can be taught. Yet educators want to enlarge the realm of the teachable. A crucial question about the way of learning in vocational teacher training is how theoretical and practical learning interact. Curriculum designers try to arrange the contents and the time structure in a way that allows for mutual supplementing and reinforcing of both. None of the three models so far has produced a firm structure of teacher training. Vocational teacher training is under change in all countries that were mentioned. Probably it will remain under change because there is no optima in the process, every solution has strengths and weaknesses, there is not only a move forward but also a move backward is always possible, all solutions are temporary. Yet in several countries the vocational teacher has joined the family of teaching professions. As a teaching profession of its own it has something to contribute and enriches pedagogical theory and practice.

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